VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: CURB RAMPS FOR PERSONS WITH MOBILITY IMPAIRMENTS	NUMBER: LD-01 (D) 55.6
SPECIFIC SUBJECT: GUIDELINES FOR THE DESIGN OF ASSESSABLE ROUTES	DATE: JANUARY 26, 2001
	SUPERSEDES: LD-95 (D) 55.5
SIGNATURE:	

Changes are shaded.

CURRENT REVISION

CRITERIA - This section has been expanded to outline the major changes to VDOT Guidelines resulting from the latest technical assistance recommendation from the U.S. Department of Transportation, the FHWA, and the U.S. Architectural and Transportation Compliance Board (Access Board).

DEFINITIONS- Definitions from the current ADA Regulations and Guidelines have been added.

POLICY- References to “accessible route” have been revised to read “continuous passage” in accordance with “Recommendations for Treatment within Public Right of Way”.

PUBLIC SIDEWALKS – Added this section.

GUIDELINES FOR CURB RAMP LOCATIONS - “Design of Curb Ramps” has been revised. Sections on “Alterations”, “Public Sidewalks” and “Site Infeasibility” have been added to emphasize the fact that the **perpendicular curb ramp design** is the preferred design.

GOALS AND OBJECTIVES – Expanded this section.

GUIDELINES FOR ALTERATIONS – Added this section.

INSERTABLE SHEETS

New insertable sheets will be available for Metric projects. The new designs are included in the 2001 Imperial Road and Bridge Standards.

EFFECTIVE DATE

This memorandum is effective on all projects that have not been approved for right of way acquisition.

CRITERIA

The Americans with Disabilities Act (ADA) became effective January 26, 1992. Additional regulations adopted by the Access Board include specific provisions for compliance within "Public Rights of Way". These additional regulations are reflected in the Technical Assistance Manual used to incorporate the following major modifications to VDOT's current guidelines:

(1) Government entities are allowed to continue the use of either Americans With Disabilities Act Accessibility Guidelines (ADAAG) or Uniform Federal Accessibility Standards (UFAS).

(2) The minimum requirements for curb ramps differ for new construction versus alterations (See definitions). Primarily, new construction is defined as requiring the purchase of right of way. Alterations occur within existing right of way.

(3) There have been modifications to the preferred design for curb ramps. Perpendicular Design (CG-12A) - The **preferred design** for new construction (requires wider sidewalks).

Parallel Design (CG-12B) – For 5' wide sidewalks.

and

Combination Design (CG-12C) – Alternate Designs, if sufficient right of way is not available for the Perpendicular design.

Diagonal Designs (such as VDOT's Std. CG-12) - Allowed only with alterations (See Guidelines for Alterations).

Diagonal Designs are not permitted for new construction.

(4) Whenever an alteration activity is conducted, curb ramp access must be included as part of the contract if curb ramps do not already exist. Exceptions to this requirement may be allowed in certain cases of site infeasibility (see sheets 4, 9, & 10).

(5) To allow pedestrian passing, a 1525 mm (5') sidewalk must be provided or passing areas 1525 m x 1525 m (5'x 5') must be provided every 61 m (200'). These passing areas can be provided at entrances or street intersections.

(6) Gutter slopes at curb ramp locations should not exceed 20:1 for new construction. Therefore, VDOT's Standard Curb and Gutter Design should be modified for use adjacent to curb ramps to ensure proper slope and adequate drainage.

(7) Continuous passages that cross medians should include a break or gap in the median (same width as the crosswalk) with a visibly contrasting surface.

(8) A light-on-dark or dark-on-light visual contrast is required between curb ramp landings and adjoining surfaces.

(9) A final decision on required detectable warning surfaces has not been made. Until a decision is made, VDOT will continue to use exposed aggregate.

(10) If on-street parking is provided, accessible spaces in accordance with ADA regulations must be provided.

DEFINITIONS

New Construction	Improvements which are constrained primarily by topographic features. For example: The design of a new subdivision, roadway or an expansion of jurisdictional limits to incorporate undeveloped land. When new rights of way are established, sufficient width should be allotted to permit new public sidewalks, if provided, to comply with regulations. New construction anticipates a high degree of accessibility and usability in features newly planned and provided within the public right of way.
Alteration	A change to a facility that affects, or could affect, the use of the facility or part thereof. Alterations occur within existing developed public right of way and include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, resurfacing, changes or rearrangement in the plan configuration of walls and full-height partitions, or pedestrian elements, or surfaces.

Public Right of Way	A strip of land within the boundaries of which a public road and its appurtenances (e.g. shoulders, parkways, borders, and public sidewalks) are built, or a public pedestrian easement providing access to a public facility through adjacent sites or properties. Jurisdictions are not required to provide a greater right of way width to accommodate sidewalk curb ramps than would otherwise be planned under regulations, guidelines, or practices normally applied to new development.
Site Infeasibility	Existing site development conditions that prohibit the incorporation of elements, spaces, or features which are in full and strict compliance with the minimum requirements for new construction in the public right of way and which are necessary for pedestrian access, circulation, and use (the basis used for exceptions and special technical provisions allowed in alterations).
Continuous Passage	A continuous unobstructed pedestrian circulation path within a public sidewalk connecting pedestrian areas, elements, and facilities in the public right of way to accessible routes on adjacent sites. A continuous passage is provided in lieu of an accessible route in a public right of way. The minimum clear width of continuous passage shall be 915 mm (36”).
Public Sidewalk	An “improved exterior pathway” (interpreted to include any unpaved continuous passage) intended for pedestrian use along a vehicular way in the public right of way or in a public pedestrian easement.
Public Sidewalk Curb Ramp	Required wherever a continuous passage crosses a curb or other change in level at each street crossing and shall be connected to any continuous passage in any direction of travel. NOT permitted in new construction: - Single (diagonal or depressed corner) public sidewalk curb ramps serving two street crossing directions - Built-up (i.e. projected) public sidewalk curb ramps
Landing	An area provided in conjunction with a Public Sidewalk Curb Ramp that permits pedestrians to bypass the flares and ramp run of a perpendicular curb ramp and allow persons using wheelchairs to turn and enter the ramp with all four wheels in contact with the surface. (See Insertable Sheet CG-12A)
Perpendicular Curb Ramp	The “Preferred” design for new construction: A curb ramp perpendicular to the curb at the street crossing with a level landing at the top. The bottom of the ramp run, exclusive of flared sides, shall be located within the marked crossing. (See Insertable Sheet CG-12A)

Parallel Curb Ramp	The "Alternate" design for new construction and for use with 5' wide sidewalk. A Curb Ramp parallel to the curb with a level landing at the bottom. This alternative is allowed when the public pedestrian right of way established by local or State regulation, guideline or practice will not accommodate a perpendicular curb ramp. The bottom of the curb ramp shall be located within the marked crossing. (See Insertable Sheet CG-12B)
Combined (Parallel & Perpendicular) Curb Ramp	The "Alternate" design for new construction with a buffer strip or for alterations. This alternative is allowed when public pedestrian right of way width established by local or State regulation, guideline, or practice will not accommodate a perpendicular curb ramp. A segment of the public sidewalk is ramped or depressed to a level landing to accomplish part of the level change and the balance is achieved by a short perpendicular sidewalk curb ramp. (See Insertable Sheet CG-12C)
Curb Ramp	Located on curb returns at intersections. Diagonal Curb Ramps, serve two street crossing directions. Diagonal Curb Ramps are NOT permitted in new construction and should be used only in alterations when preferred alternatives cannot be provided.
Passing Space	The Minimum clear space of 1525 mm x1525 mm (60" x 60") provided at intervals of no less than every 61 m (200 ft) along public sidewalks for wheelchairs to pass. These passing spaces may be accommodated along public sidewalks, at driveways, at building entrances, and at public sidewalk intersections.

POLICY

VDOT's policy is to provide facilities for persons with mobility impairments in accordance with Section 15.1 –381 Code of Virginia. (See Code of Virginia)

Curb Ramps shall conform to Road and Bridge Standard CG-12A, B or C (See attached sheets) and Sections 502 and 504 of the Road and Bridge Specifications.

The Perpendicular Curb Ramp (CG-12A) is the preferred design.

Curb ramps for persons with mobility impairments shall be provided at intersections wherever a continuous passage, 915 mm (3') minimum width, within the public right of way of a highway facility crosses a curb regardless of whether sidewalk is existing, proposed or non-existent.

Each location under consideration for requiring St'd. CG-12's should be reviewed to determine if a continuous passage exists. Do not install a curb ramp just because there is an intersection along a curb and gutter section of roadway. Use engineering judgment in evaluating the location. Are you directing the pedestrian to a brick wall, fence or drainage structure instead of along a continuous passage? If so, you should not require a curb ramp. If you only have 450 mm (1.5') behind the curb, do not require a curb ramp in anticipation of the "possibility of a future" modification to a 915 mm (3') space.

Curb ramps shall be stable, firm, slip-resistant and constructed of concrete with exposed aggregate finish to provide visual contrast (light-on-dark or dark-on-light) in accordance with the Special Provision "Copied Note" for Exposed Aggregate Finish and as specified on the attached sheets depicting revised Standards CG-12A, CG-12B and CG-12C.

Construction of just the wiped down section of curb with intentions of installing the exposed aggregate sidewalk portion of the ramp when/if sidewalk is installed along the accessible route is not acceptable. Construction of the entire Standard CG-12A, B or C is required with each installation.

Curb ramps are required only when a continuous passage (see "definitions") is to be provided within the public right of way for accessible routes connecting pedestrian areas, elements and facilities.

Proposed Curb Ramp Locations are to be reviewed by the Hydraulics Section to avoid any potential drainage problems.

Proposed Curb Ramp Locations, accessible routes, and sidewalks are to be reviewed by the Traffic Engineering Division at Field Inspection Stage to determine any possible conflicts with signs, signals, signal boxes, crosswalks and stop bars.

GOALS AND OBJECTIVES

A public sidewalk curb ramp is required to provide access to and from sidewalks, or continuous passage sidewalk spaces, for persons with mobility impairments. This includes users of wheelchairs, canes, crutches, walkers, braces, lower-limb prostheses, persons with gait balance and stamina impairments, the elderly, and persons with visual impairments (such as depth perception difficulties).

There are four objectives related to this goal:

1. Provide a curb ramp design and placement that is usable by persons with mobility impairments.
2. Provide design and placement alternatives for a range of sidewalk and street conditions.
3. Provide a minimal impact to non-impaired pedestrians.
4. Place curb ramps in uniform and consistent locations.

Pedestrians who have mobility impairments, including those who use wheelchairs, will benefit most from design approaches that minimize physical barriers to travel and maneuverability. Pedestrians with cognitive and sensory impairments, particularly those who have limited vision and those who are blind, should have access to information on the pedestrian environment that is necessary for independent travel. Pedestrians who use crutches are particularly susceptible to cross slope when they are traveling downhill. Children, including those with disabilities and those using bicycles and other wheeled toys, are primary users of sidewalks and are significantly less able to compensate for cross slope than adults.

PUBLIC SIDEWALKS

Public sidewalks include any exterior walkway (surfaced or unsurfaced) in the public right of way intended for pedestrian use, whether raised to curb height, separated horizontally by a parkway, or surfaced for pedestrian use along the shoulder of a roadway. Although most public sidewalks border streets and roadways, pedestrian streets developed in urban areas and public pedestrian easements that do not parallel vehicular ways but are part of a pedestrian circulation network in the public right of way are also included. Where pedestrians and cyclists are intended to share a route in the public right of way, the route must meet requirements for public sidewalks.

Public sidewalks shall have the following elements:

Height

Restrictions The passage along or within a sidewalk or shared use path should be clear of obstructions underfoot, overhead, or in between. Objects that protrude into a circulation route above a height of 685 mm (27”) (wall mounted telephones, signal boxes, etc,) are not detectable by cane. Elements below 2030 mm (80”) that overhang a sidewalk or shared path, are often not detected by blind pedestrians. This includes items such as awnings, banners, signs, and tree branches.

Width Minimum clear width of a continuous passage shall be 915 mm (36”). Where right of way permits, public sidewalks should be a minimum of 1525 mm (60”) wide.

Public sidewalks less than 1525 mm (60”) in continuous width shall provide passing space at reasonable intervals not to exceed 61 m (200’). Passing space shall provide a 1525 mm x1525 mm (60”x 60”) minimum clear space and may be provided at driveways, building entrances, and public sidewalk intersections.

Slope Minimum feasible public sidewalk running slope consistent with slopes established for adjacent roadways shall be provided. Cross slope shall not exceed 1:50.

A slope exceeding 12:1 (8.33%) may preclude the independent use of a curb ramp by some pedestrians. In an alteration, slopes as steep as 10:1 (10%) are permitted for a distance of a 150 mm (6”) rise if it is not feasible to provide a ramp of 12:1. For a 75 mm (3”) rise, the minimum slope may be as steep as 8:1. In historic facilities, a 6:1 ramp for a maximum run of 610 mm (24”) is permitted if a lesser slope is infeasible.

A level area with minimal cross slope is necessary for accessible passage across a driveway. Driveway aprons that are constructed like ramps, with steep short side flares, can render a section of sidewalk impassible, especially when encountered in series, as in residential neighborhoods.

Surfaces

Shall be stable, firm and slip resistant and shall be generally in a continuous plane with a minimum of surface warping.

Changes in level up to 6 mm (1/4”) may be vertical and without edge treatment. Changes in level between 6 mm (1/4”) and 13 mm (1/2”) shall be beveled with a slope no greater than 2:1. Changes in level greater than 13 mm (1/2”) shall be accomplished by means of a public sidewalk curb ramp.

Gratings in public sidewalks shall have spaces no greater than 13 mm (1/2”) wide in the direction of traffic flow and shall not be located in the continuous passage.

Where public sidewalks cross rail systems at grade, the surface of the continuous passage shall be level and flush with the rail top at the outer edge and between the rails.

Separation

Public sidewalks shall be raised to curb height or separated from vehicular ways by curbs, planted parkways, or other barriers, which shall be continuous except where interrupted by driveways, alleys or connections to accessible elements.

EXCEPTION: Unseparated public sidewalks may be constructed along undeveloped frontages of rural roadways.

GUIDELINES FOR CURB RAMP LOCATIONS

The placement of curb ramps is as critical to their effectiveness as the design. The three issues are: placement with respect to obstructions, crosswalks, and intersection types. The objective of placement relative to obstructions is to maintain consistent and effective placement.

Where crosswalk markings exist or are planned, curb ramps shall be located within the crosswalks. This may necessitate the widening of a crosswalk. Curb ramps shall be located in front of vehicle stop line. Crosswalk markings are employed to guide pedestrians in the proper paths and are often used where there is substantial conflict between vehicle and pedestrian movement. The project manager should discuss relationship between crosswalks, stop bars and curb ramps with the Traffic Engineer throughout the design of a project.

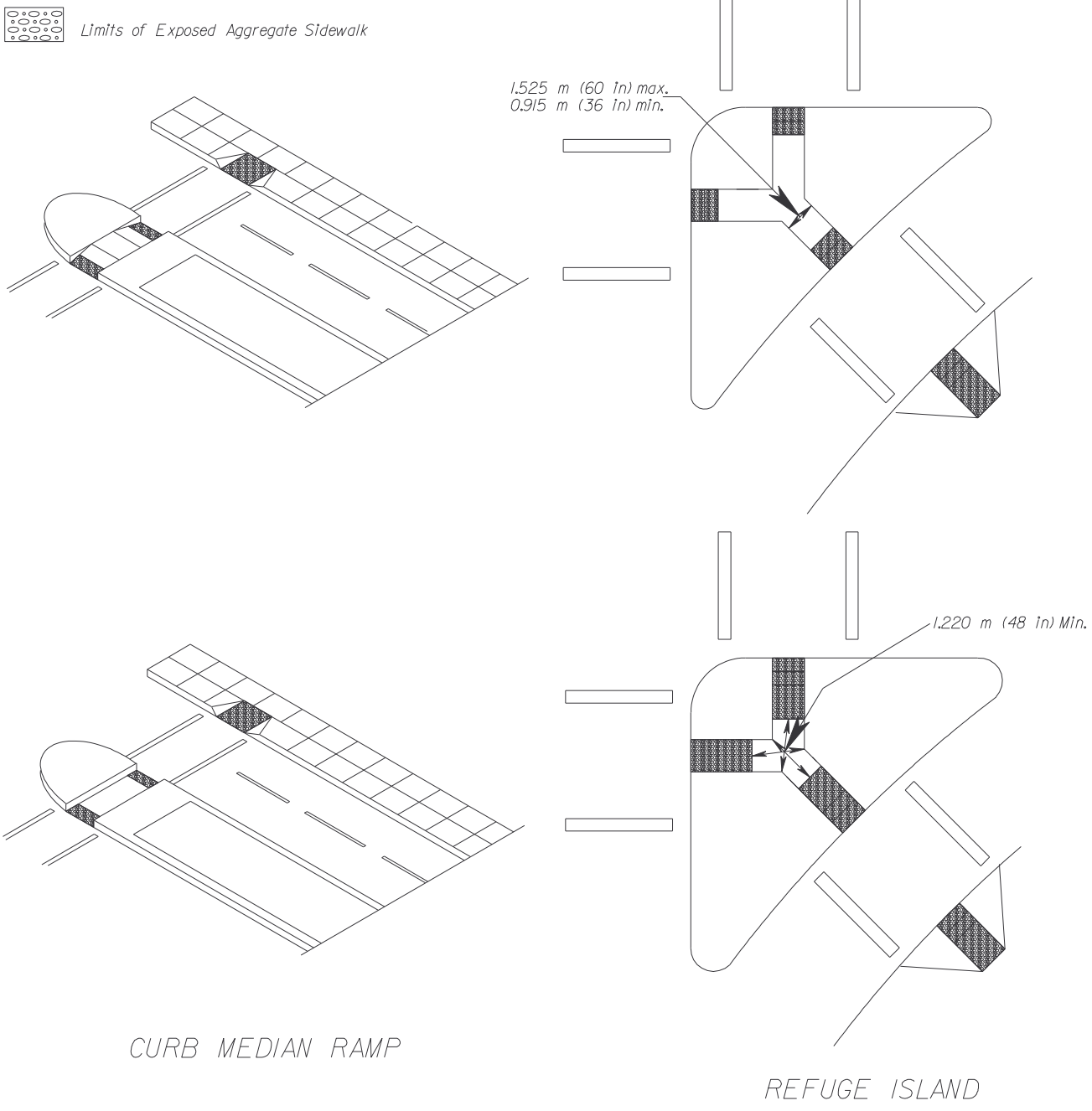
The ramps may be centered or located to one side of the crosswalk with the flare outside of the crosswalk.

When a continuous passage crosses a median, a break or gap in the median equal to the width of the crosswalk shall be constructed.

Typical situations depicting placement of curb ramps in new construction and in alterations have been incorporated in VDOT's Road and Bridge Standard details. Designers are urged to use good engineering judgment in determining placement.

Matching curb ramps should be provided at all corners of an intersection that incorporate accessible routes, or on both sides of a mid-block location to establish a continuous passage for ramp users. If curb ramps are not placed at all corners of an intersection the ramp user's accessibility is restricted to the paths that provide curb ramps. Access to all pedestrian paths should be provided.

On new construction projects, utility poles, traffic control devices (such as sign, signal and lighting structures), fire hydrants, and drop inlets should be located so as to provide an unobstructed continuous passage to the curb ramp. Because the location of curb ramps may be adversely affected by obstructions, the curb ramp location should have priority over the location of potential obstructions.



CURB RAMP APPLICATIONS DETAILS

GUIDELINES FOR ALTERATIONS

If existing areas, elements, or facilities intended for pedestrian access, circulation, and use in an existing developed public right of way are altered, that is considered an alteration.

Alterations shall comply to the maximum extent feasible with the requirements for new construction.

No alterations shall be undertaken that will decrease, or have the effect of decreasing, the accessibility or usability of existing pedestrian areas, elements or facilities.

If alterations to existing public sidewalks, public sidewalk curb ramps, or pedestrian street crossings, when considered together amount to reconstruction of a block, intersection, or other substantial segment of the pedestrian circulation network in the public right of way, the entire segment, to the maximum extent feasible, shall comply with provisions for new construction.

No alterations of an existing pedestrian area, element, or facility shall impose a requirement for greater accessibility than that which would be required for new construction.

Alterations to a public sidewalk, public sidewalk curb ramp, or pedestrian street crossing in the public right of way shall be made so that adjacent segments on the continuous passage are readily accessible to and usable by individuals with disabilities, unless such alterations are prohibited in terms of cost and scope.

Ramps Curb ramps and exterior ramps to be constructed on sites or in existing facilities where space limitations prohibit the use of a 12:1 slope or less may have slopes and rises as follows:

(1) A slope between 10:1 and 12:1 is allowed for a maximum rise of 150 mm (6”).

(2) A slope between 8:1 and 10:1 is allowed for a maximum rise of 75 mm (3”). A slope steeper than 8:1 is not allowed.

Stairs Full extension of handrails at stairs shall not be required in alterations where such extensions would be hazardous or impossible due to plan configuration.

EXCEPTION: In alteration work, if site infeasibility precludes compliance, the alteration work shall provide accessibility to the maximum extent feasible. Any elements or features of the public pedestrian right of way that are being altered shall be made accessible within the scope of the alteration.

Site Infeasibility

A declaration of “site infeasibility” is only permitted in alterations within existing right of way. Existence of site conditions (such as those that follow) that prohibit full compliance with accessibility requirements are the basis that may be used for exceptions to accessibility requirements in alterations or for compliance with special technical provisions allowed in alterations.

Site infeasibility may be warranted in the following situations:

(1) Existence of underground structure, such as utility vault, manhole, or sewer inlet at a street crossing, which may preclude the installation of a new public sidewalk curb ramp in full compliance with provisions for new construction.

(2) Geometric design of existing roadways, bridges, or tunnels constrained by structural elements that, even when altered, may not accommodate a 915 mm (36”) wide public sidewalk.

(3) Differences in finished grade at curbside and elevations at existing building entrances at the back-of-sidewalk which may preclude compliance with cross slope provisions across the entire public sidewalk width.

(4) Existing fixed equipment, such as fire hydrants or street lighting standards, located on a public sidewalk and connected to below-grade water, power, signal, and similar distribution systems which may prevent full compliance with public sidewalk curb ramp provisions if the equipment cannot be relocated in the course of the work.

(5) Existing narrow public sidewalks or rights of way that might preclude the maintenance of a continuous passage free of gratings required for new subway construction.

(6) The existence of an established landscaping feature, such as a large tree or grouping of trees, that may preclude the provision of a parallel access aisle at a newly-established on-street parking space. Furthermore, a pre-existing commercial use of the public sidewalk, as for a sidewalk café, may also constitute site infeasibility if no other location for an accessible parking space is feasible within the scope of the alterations project.

A finding of site infeasibility must be made relative to each feature of accessible elements. For example, although a finding of site infeasibility may be made with respect to the length of a required curb ramp landing, the slope, cross slope, and other features of the curb ramp must comply with new construction provisions, if feasible.

Miscellaneous Notes

Maintenance of curb ramps may be necessary. Where there is a low velocity of storm runoff water, debris will accumulate at the base of the ramp. Very little can be done cost-effectively to overcome this from a design and placement perspective.

The design guidelines are based on a standard curb height of 150 mm (6”). Should increased heights be used, it will be necessary to add to the length of the curb ramp.

Special attention should be given to ensure that the bottom of the curb ramp is not affected by re-paving the street.

New construction should not contain grates within the 915 mm (36”) continuous passage. Should grates be located in walking surfaces, they shall have spaces no greater than 13 mm (1/2”) wide in one direction. If grates have elongated openings, they shall be placed so that the long dimension of the opening is perpendicular to the dominant direction of travel.

Summary of things to consider:

One curb ramp is to be provided at each crossing, where feasible.

Curb Ramps are to be perpendicular to the curb.

Do not exceed a maximum slope of 12:1 (new construction).

Do not exceed a maximum cross slope of 2%.

Provide a 1 meter (36”) minimum width.

Provide a level landing at every 0.8 meter (30”) rise and at turns.

Provide extra maneuvering space at doorways, turns and stairs.

Provide a flush connection at streets.

3’ Absolute minimum between sloping portions of ramps.

SPECIAL PROVISION

Please refer to the applicable special provision “Copied Note” for exposed aggregate on all projects using Standards CG-12A, CG-12B or CG-12C and/or Standard CG-13.

STANDARD CG-13- COMMERCIAL ENTRANCE

The Standard CG-13 Commercial Entrance incorporates continuous passage treatment within the design.

PAY ITEMS

The following pay items should be used on all applicable projects.

Pay Items	Pay Unit	Item Code
Exposed Aggregate Sidewalk 100 mm (4”)	m^2(Square Yards)	13224
Exposed Aggregate Sidewalk 175 mm (7”)	m^2 (Square Yards)	13226
Hydraulic Cement Concrete Sidewalk 175 mm (7”)	m^2 (Square Yards)	13222

INSERTABLE SHEETS

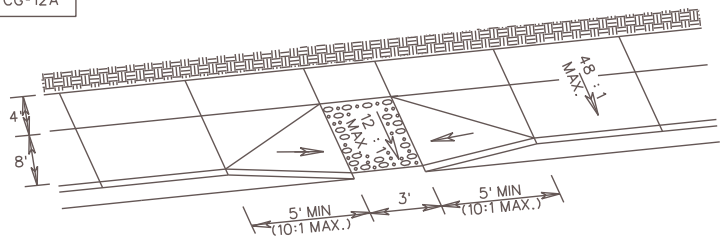
The following insertable sheets will be available in the CADD insertable sheet directory for Metric projects. (The 2001 Road and Bridge Standards include the drawings for Imperial projects.)

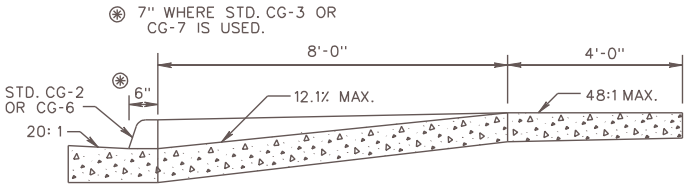
Perpendicular Curb Ramp, CG-12A

Parallel Curb Ramp, CG-12B

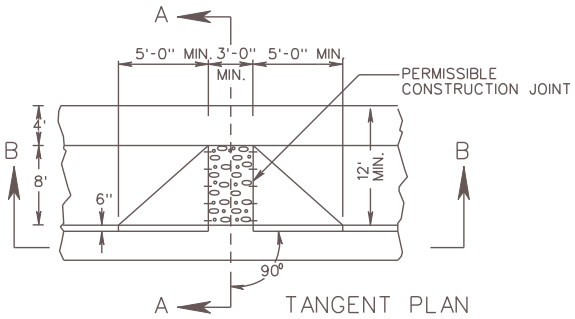
Combined (Parallel and Perpendicular) Curb Ramp, CG-12C

CG-12A

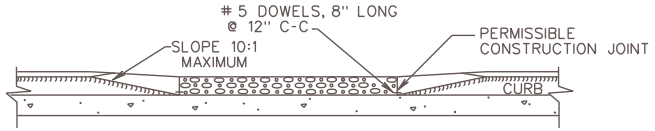




SECTION A-A



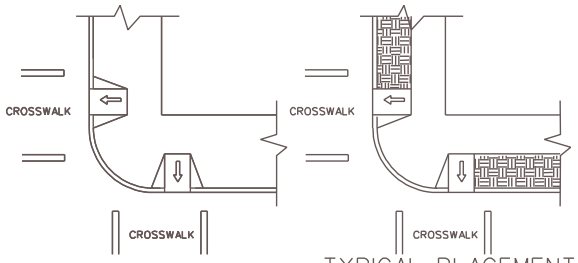
TANGENT PLAN



SECTION B-B

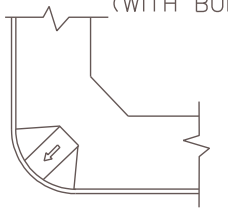
LIMITS OF EXPOSED AGGREGATE SIDEWALK

ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.



TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK

TYPICAL PLACEMENT AT INTERSECTION WITHIN CROSSWALK (WITH BUFFER STRIP)



DIAGONAL VARIATION

NOTES :

THIS DESIGN TO BE USED FOR CONSTRUCTION THAT INCORPORATES WIDER SIDEWALK. LANDING (48" WIDE) REQUIRED AT TOP OF CURB RAMP. MINIMUM CURB RAMP LENGTH 8 FT. FOR NEW CONSTRUCTION, 6 FT. FOR ALTERATIONS.

CURB RAMP FLOOR TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL DETECTABLE WARNING SURFACE COVERING THE ENTIRE WIDTH OF THE RAMP FLOOR (RAMP FLOOR MAY BE PRECAST OR CAST IN PLACE). THE DETECTABLE WARNING SHALL BE PROVIDED BY AN EXPOSED AGGREGATE FINISH. RAMP SHALL NOT EXCEED A MAXIMUM SLOPE OF 12:1.

SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.

IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.

REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".

CURB RAMPS WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR HYDRAULIC CEMENT CONCRETE SIDEWALK AND EXPOSED AGGREGATE SIDEWALK, COMPLETE-IN-PLACE.

CURB/CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB/CURB AND GUTTER.

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB AND CONFIGURATION.

CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSABLE ROUTE ✱ WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. WILL ALSO AFFECT PLACEMENT.

PERPENDICULAR CURB RAMP (ACCESS FOR MOBILITY IMPAIRMENTS)

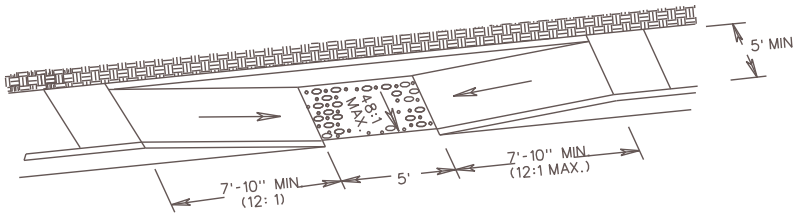
VIRGINIA DEPARTMENT OF TRANSPORTATION

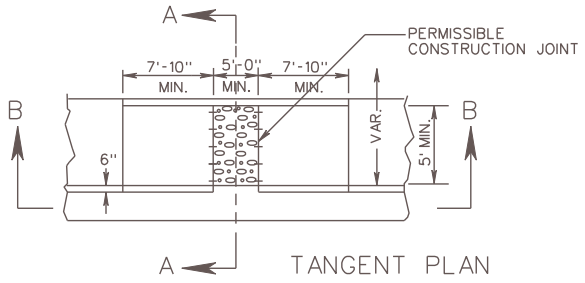
203.05

SPECIFICATION REFERENCE

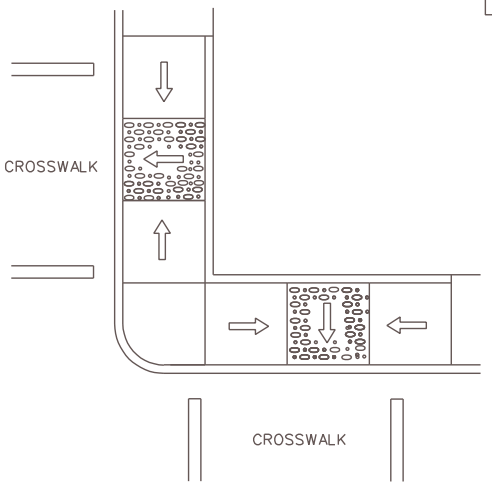
105
502

NOTE: THIS IS A **SAMPLE** STANDARD SHEET. FOR A CURRENT VERSION SEE THE 2001 ROAD AND BRIDGE STANDARDS.



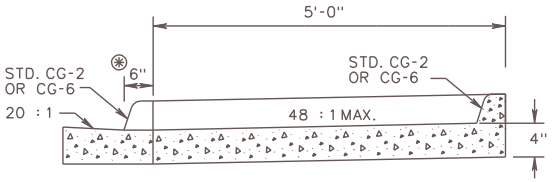


TANGENT PLAN

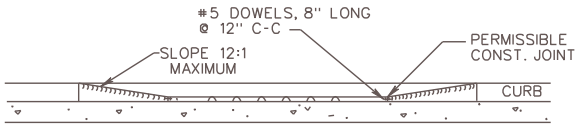


TYPICAL PLACEMENT
AT INTERSECTION
WITHIN CROSSWALK

⊛ 7" WHERE STD.
CG-3 CG-7 IS USED.



SECTION A-A



SECTION B-B

LIMITS OF EXPOSED AGGREGATE SIDEWALK

⊛ ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.

NOTES :

THIS DESIGN INCOROPORATES A RAMP. FLOOR AT BOTTOM OF TWO SLOPING SIDES WITH 60" X 60" MINIMUM DIMENISIONS. PLACEMENT OF DRAINAGE STRUCTURES IS CRITICAL.

CURB RAMP FLOOR TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL DETECTABLE WARNING SURFACE COVERING THE ENTIRE WIDTH OF THE RAMP FLOOR (RAMP FLOOR MAY BE PRECAST OR CAST IN PLACE). THE DETECTABLE WARNING SHALL BE PROVIDED BY AN EXPOSED AGGREGATE FINISH. RAMP SHALL NOT EXCEED A MAXIMUM SLOPE OF 12:1.

SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.

IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4.

REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".

CURB RAMPS WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR HYDRAULIC CEMENT CONCRETE SIDEWALK AND EXPOSED AGGREGATE SIDEWALK, COMPLETE-IN-PLACE.

CURB/CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB/CURB AND GUTTER.

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB AND CONFIGURATION.

CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSABLE ROUTE ⊛ WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. WILL ALSO AFFECT PLACEMENT.

SPECIFICATION REFERENCE
105 502

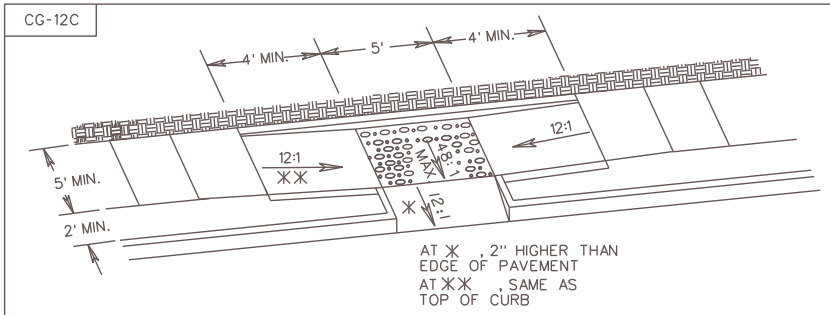
PARALLEL CURB RAMP
(ACCESS FOR MOBILITY IMPAIRMENTS)

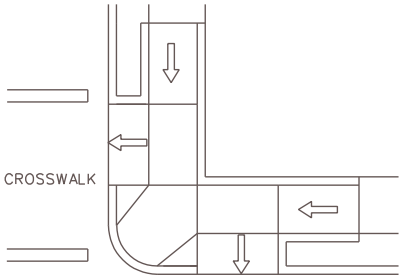
VIRGINIA DEPARTMENT OF TRANSPORTATION

203.06

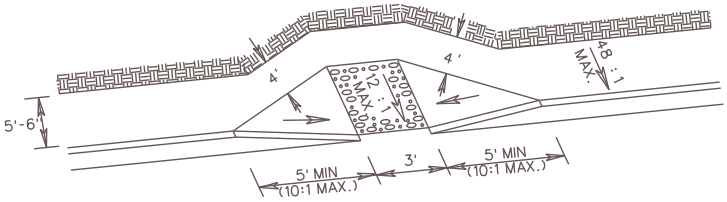
NOTE: THIS IS A **SAMPLE** STANDARD SHEET. FOR A CURRENT VERSION SEE THE 2001 ROAD AND BRIDGE STANDARDS.

CG-12C

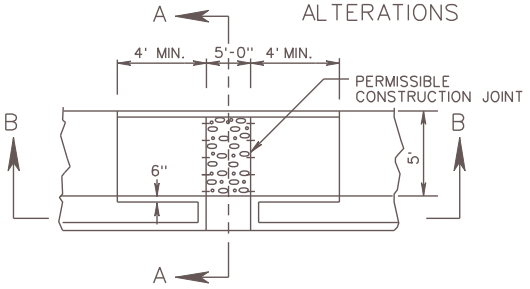




TYPICAL PLACEMENT AT INTERSECTION WITH BUFFER STRIP

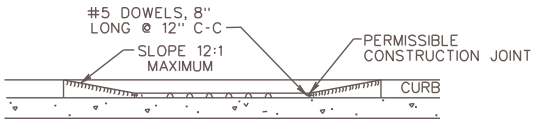


ALTERATIONS



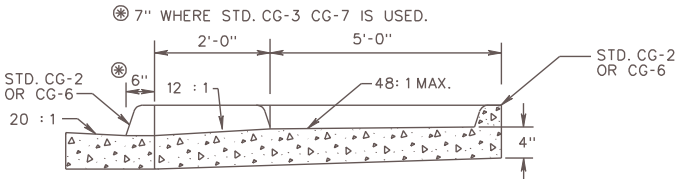
TANGENT PLAN

LIMITS OF EXPOSED AGGREGATE SIDEWALK



SECTION B-B

✳ ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.



SECTION A-A

NOTES :

THIS COMBINED (PARALLEL & PERPENDICULAR) DESIGN FOR ALTERATIONS CAN BE USED WITH ADJOINING BUFFER STRIP. LANDING AT BOTTOM OF TWO SLOPING SIDES WITH 60" X 60" MIN. DIMENSIONS. THE SHORT PERPENDICULAR RUN TO THE STREET CAN BE PROTECTED BY A LANDSCAPED SETBACK OR CONNECTED TO THE SIDEWALK WITH A WARPED SURFACE.

CURB RAMP FLOOR TO BE CLASS A-3 CONCRETE (CLASS A-4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL DETECTABLE WARNING SURFACE COVERING THE ENTIRE WIDTH OF THE RAMP FLOOR (RAMP FLOOR MAY BE PRECAST OR CAST IN PLACE). THE DETECTABLE WARNING SHALL BE PROVIDED BY AN EXPOSED AGGREGATE FINISH. RAMP SHALL NOT EXCEED A MAXIMUM SLOPE OF 12:1.

SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.

IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A-4. REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".

CURB RAMPS WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICES FOR HYDRAULIC CEMENT CONCRETE SIDEWALK AND EXPOSED AGGREGATE SIDEWALK, COMPLETE-IN-PLACE.

CURB/CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB/CURB AND GUTTER.

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB AND CONFIGURATION.

CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSABLE ROUTE ✳ WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. WILL ALSO AFFECT PLACEMENT.

COMBINED (PARALLEL & PERPENDICULAR) CURB RAMP (ACCESS FOR MOBILITY IMPAIRMENTS)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

105
502

203.07

NOTE: THIS IS A **SAMPLE** STANDARD SHEET. FOR A CURRENT VERSION SEE THE 2001 ROAD AND BRIDGE STANDARDS.